

AMENDMENT TO THE CLAIMS:

Claim 1 (Currently Amended) A device for manipulating a molecule *in vivo* relative to a target tissue comprising:

a support;

at least four generally rectangular striplike electrode members having at least one conductive portion, the electrode members affixed to the support;

the conductive portions are separated by nonconductive portions, each conductive portion being in circuit communication with an independently addressable respective portion of a source of electrical energy;

at least two of the conductive portions positioned on different electrode members and locatable against a selected portion of the target tissue are configured to establish a first electromagnetic field between the at least two conductive portions sufficient to manipulate a molecule relative to a target tissue; and

at least two of the conductive portions positioned on different electrode members and locatable against a selected portion of the target tissue are configured to establish a second electromagnetic field sufficient to cause transient permeability of a cell membrane within the target tissue.

Claim 2 (Withdrawn) The device recited in Claim 1, wherein the conductive portions and the nonconductive portions are located on the same electrode member.

Claim 3 (Cancelled)

Claim 4 (Withdrawn) The device recited in Claim 1, wherein the electrode member comprises a plurality of electrode members affixed to the support and the conductive portions and the nonconductive portions are located along the electrode members.

Claim 5 (Cancelled)

Claim 6 (Cancelled)

Claim 7 (Withdrawn) The device recited in Claim 1, wherein the support comprises a generally cylindrical post having a portal therethrough from a top end to a bottom end and the device further comprises:

a disc affixed to the post bottom end, the disc having a bottom surface having an outer downwardly depending annulus comprising alternating conductive portions separated by nonconductive portions, the electrode member comprising the annulus and the conductive portions serving as electrodes; and

a lead in circuit communication with each conductive portion extending from the disc through the post portal to the top end thereof.

Claim 8 (Cancelled).

Claim 9 (Withdrawn) The device recited in Claim 7, further comprising:

a plurality of contact means positioned adjacent the post portal top end and in circuit communication with each lead; and

interface means positioned adjacent the post portal top end having means for communicating with each contact means for establishing circuit communication with a signal generator.

Claim 10 (Withdrawn) The device recited in Claim 9, wherein:

each of the contact means comprises a contact brush affixed within the portal against an inner wall thereof; and

the interface means comprises a key interlock insertable within the portal at the top end thereof and having a contact pad positioned for communication with each contact brush.

Claim 11 (Withdrawn) The device recited in Claim 7, wherein the disc comprises a flexible material for permitting shape adaptation with the selected portion of the target tissue.

Claim 12 (Withdrawn) The device recited in Claim 7, wherein the disc comprises a section having sufficient transparency to permit visualization of the selected target tissue therethrough.

Claim 13 (Previously Amended) The device recited in Claim 1, further comprising means for delivering a preselected pattern of signals to selected conductive portions to effect a desired molecular result.

Claim 14 (Cancelled)

Claim 15 (Cancelled)

Claim 16 (Withdrawn) The device recited in Claim 1, the electrode member further comprising a downwardly depending post affixed adjacent a bottom end of the support, the post having at least one conductive portion on a surface thereof.

Claims 17 - 20 (Cancelled)

Claim 21 (Withdrawn) The device recited in Claim 16, wherein the electrode member comprises a plurality of downwardly depending posts, each post axially movable between a first position and a second position lower than the first position and biased to the second position, for achieving contact between each post and a target tissue surface.

Claim 22 (Withdrawn) The device recited in Claim 21, wherein each post is affixed to the support in spring-loaded fashion.

Claim 23 (Withdrawn) The device recited in Claim 21, wherein each post extends in a generally linear fashion from the distal end of the support.

Claim 24 (Withdrawn) The device recited in Claim 21, wherein the posts are curved with respect to the distal end of the support.

Claim 25 (Withdrawn) The device recited in Claim 21, wherein each post has a pointed conductive bottom tip, the tips disposed at a radially inwardly facing angle to each other, each post inwardly movable between a first position and a second position wherein the tips are closer together than in the first position, the second position for achieving contact with the target tissue between the tips.

Claim 26 (Withdrawn) The device recited in Claim 1, further comprising a pair of electrode members movably affixed to the support in separation-adjustable fashion, each electrode member comprising means for affixing at least one conductive portion thereto, said conductive portions serving as electrodes.

Claim 27 (Withdrawn) The device recited in Claim 26, wherein each electrode member comprises an insulating plate, and wherein a plurality of electrodes affixed to a surface of each plate, the plates configured to contact at least a portion of the target tissue therebetween.

Claim 28 (Previously Amended) The device recited in Claim 1, further comprising means for establishing at least two substantially different voltages approximately simultaneously on two or more conductive portions.

Claim 29 (Withdrawn) The device recited in Claim 1, further comprising means for selectively activating each conductive portion in a predetermined pattern.

Claim 30 (Withdrawn) The device recited in Claim 29, wherein the source of electrical energy comprises a signal generator and the activating means comprises software means in controlling relation to the signal generator.

Claim 31 (Withdrawn) The device recited in Claim 1, wherein the support has a lumen therethrough dimensioned for admitting a syringe needle thereinto to permit an introduction of a substance containing the molecule into the target tissue.

Claim 32 (Withdrawn) The device recited in Claim 1, further comprising means for facilitating attachment of the electrode member to the target tissue.

Claim 33 (Previously Amended) The device recited in Claim 1, further comprising means to facilitate contact between the electrode member and the target tissue.

Claim 34 (Withdrawn) The device recited in Claim 33, wherein the facilitating means comprises a mechanical means.

Claim 35 (Withdrawn) The device recited in Claim 33, wherein the facilitating means is selected from a group consisting of a barb and surface roughness.

Claim 36 (Withdrawn) The device recited in Claim 33, wherein the facilitating means comprises a chemical means.

Claim 37 (Withdrawn) The device recited in Claim 36, wherein the facilitating means is selected from a group consisting of bioadhesives and adhesives.

Claim 38 (Withdrawn) A method for achieving a desired distribution and delivery of one or more molecules from an initial location into a target tissue, the method comprising the steps of:

placing at least one electrode member comprising at least one conductive portion, wherein at least two conductive portions are generally adjacent, but in nonpenetrating fashion to, a surface adjacent a target tissue, each conductive portion in circuit communication with a respective portion of a source of electrical energy;

establishing a first electrical potential between at least two conductive portions sufficient to cause electromigration of the desired molecule from the initial location toward the target tissue; and

establishing a second electrical potential between at least two conductive portions sufficient to cause electroporation in the target tissue for enhancing a movement of the desired molecule into a cell thereof.

Claim 39 (Withdrawn) The method recited in Claim 38, wherein the establishing steps comprise establishing a series of first and second electrical potentials in a predetermined sequence of pulses.

Claim 40 (Withdrawn) The method recited in Claim 38, further comprising the step of establishing a third electrical potential between at least two conductive portions sufficient to cause electromigration of the desired molecule from a location adjacent the target tissue through a pore in a cell membrane of the target tissue into an interior thereof.

Claim 41 (Withdrawn) The method recited in Claim 40, wherein the establishing step comprises establishing a series of third electrical potentials in a predetermined sequence of pulses.

Claim 42 (Withdrawn) The method recited in Claim 38, wherein the electrode members are configured to at least partially surround a surface projection or a projection within an orifice near a periphery of the target tissue.

Claim 43 (Withdrawn) The method recited in Claim 38, wherein the electromigration is effected to cause the molecule to penetrate a skin layer.

Claim 44 (Withdrawn) A method for delivering a bioactive molecule from an initial location to a target tissue, the method comprising the steps of:

placing at least one electrode member having conductive portions, wherein at least two conductive portions are against a surface generally adjacent, but in nonpenetrating fashion to, a

target tissue, each conductive portion serving as an electrode and being in circuit communication with a respective portion of a source of electrical energy;

activating at least two electrodes to achieve an electromigration of the bioactive molecule from the initial location to a location adjacent the target tissue; and

activating at least two electrodes to achieve electroporation of a cell membrane within the target tissue sufficient to permit entry of the biological molecule into the cell interior.

Claim 45 (Withdrawn) The method recited in Claim 44, wherein the electromigration is effected to cause the molecule to penetrate a skin layer.

Claim 46 (Withdrawn) A method for bringing a first and a second molecule from two respective initial locations into apposition at a desired target tissue site for permitting a reaction therebetween, the method comprising the steps of:

placing at least one electrode member having conductive portions, wherein at least two conductive portions are against a surface generally adjacent, but in nonpenetrating fashion to, a target tissue, each conductive portion serving as an electrode and being in circuit communication with a respective portion of a source of electrical energy;

activating the conductive portions to cause an electromigration of the first molecule to a third area adjacent the target tissue site;

activating the conductive portions to cause an electromigration of the second molecule to a third area adjacent the target tissue site; and

permitting the first and the second molecule to react at the third area.

Claim 47 (Cancelled)

Claim 48 (Withdrawn) The method recited in Claim 46, wherein the electromigration of the first molecule is effected to cause the first molecule to penetrate a skin layer.

Claim 49 (Withdrawn) The method recited in Claim 46, wherein the activation steps cause the first and the second molecule to be delivered to the cytosol of cells comprising the target tissue.

Claim 50 (Withdrawn) The method recited in Claims and 77, wherein the penetration step is effected through a biological tissue other than skin.

Claim 51 (Withdrawn) The method recited in Claim 46, further comprising the step, prior to the activating step, of activating two conductive portions to cause electroporation in the target tissue.

Claim 52 (Withdrawn) The method recited in Claim 46, further comprising the step, following the activating step, of activating two conductive portions to cause electroporation in the target tissue.

Claim 53 (Withdrawn) The method recited in Claim 46, wherein the electromigration is effected from a plurality of sides of the target tissue, and wherein the electrode member comprises a plurality of electrode members adjacent the target tissue.

Claim 54 (Withdrawn) The method recited in Claim 53, wherein the electrode member comprises a plurality of electrode members, and wherein the activating step is sufficient to effect electromigration but is insufficient to effect electroporation.

Claim 55 (Withdrawn) The method recited in Claim 46, further comprising the step, following the activating step, of activating the areas of conductivity sufficiently to cause electroporation in the target tissue.

Claim 56 (Withdrawn) The method recited in Claim 46, further comprising the step, substantially simultaneously with the activating step, of activating the areas of conductivity sufficient to cause electroporation in the target tissue.



Claim 57 (Withdrawn) A method for making a molecule electromanipulator comprising the steps of:

affixing at least one electrode member comprising conductive portions to a support in spaced-apart relation;

providing circuit communication between each conductive portion and a source of electrical energy, the conductive portions configured to establish a first electromagnetic field *in vivo* between selected conductive portions for manipulating a molecule relative to a target tissue and a second electromagnetic field *in vivo* for causing transient permeability of a cell membrane within the target tissue.

Claim 58 (Withdrawn) The method recited in Claim 57, further comprising the step of providing means for controlling the switching means adapted to activate the conductive portions in a preselected pattern.

Claim 59 (Withdrawn) The device recited in claim 7, wherein the disc has a noncircular shape.

Claim 60 (Withdrawn) The device recited in Claim 7, wherein the post has a geometry that facilitates grasping the device for accessing the target tissue.

Claim 61 (Previously Amended) The device recited in Claim 1, wherein each striplike electrode member is movable between a first position and a second position, wherein the electrode members are closer together than in the first position.

Claim 62 (Withdrawn) The device recited in Claim 60, further comprising a first restraining means for selecting the minimum distance between electrode members, and a second restraining means for selecting the maximum distance between electrode members.

Claim 63 (Withdrawn) The device recited in Claim 61, wherein the first restraining means comprises an insert positionable in the lumen between the electrode members.

Claim 64 (Withdrawn) The device recited in Claim 61, wherein the first restraining means comprises a set screw.

Claim 65 (Withdrawn) The device recited in Claim 61, wherein the second restraining means comprises a torodial ring.

Claim 66 (Withdrawn) The device recited in Claim 60, further comprising a lead in circuit communication with each conductive portion adapted for electrical communication with the source of electrical energy.

Claim 67 (Withdrawn) The method recited in Claim 43, wherein the penetration is effected through biological tissue other than skin.

Claim 68 (Withdrawn) The method recited in Claim 38, wherein the establishment of the second electrical potential causes the molecule to be delivered to the cytosol of the cells that comprise the target tissue.

Claim 69 (Withdrawn) The method recited in Claim 38, wherein the first potential causing electromigration is used independently of electroporation.

Claim 70 (Withdrawn) The method recited in Claim 38, wherein the second potential causing electroporation is used independently of electromigration.

Claim 71 (Withdrawn) The method recited in Claim 38, wherein the electroporation is caused prior to the electromigration.

Claim 72 (Withdrawn) The method recited in Claim 45, wherein the penetration is effected through biological tissue other than the skin.

Claim 73 (Withdrawn) The method recited in Claim 44, wherein the electroporation of the second electrical potential causes the molecule to be delivered to the cytosol of the cells that comprise the target tissue.

Claim 74 (Withdrawn) The method recited in Claim 44, wherein electromigration is used independently of electroporation.

Claim 75 (Withdrawn) ) The method recited in Claim 44, wherein electroporation is used independently of electromigration.

Claim 76 (Withdrawn) The method recited in Claim 44, wherein the electroporation is caused prior to the electromigration.

Claim 77 (Withdrawn) The method recited in Claim 46, wherein the electromigration of the second molecule is effected to cause the second molecule to penetrate a skin layer.

Claim 78 (Withdrawn) The method recited in Claim 57, further comprising switching means between each conductive portion and the electrical energy source to permit activation of the conductive portions on each electrode member.